NAT. CROAT. VOL. 22 No 2 243–252 ZAGREB December 31, 2013

original scientific paper/izvorni znanstveni rad

AQUATIC DANCE FLIES FAUNA (DIPTERA, EMPIDIDAE: CLINOCERINAE AND HEMERODROMIINAE) OF MONTENEGRO

Marija Ivković*§, Zlatko Mihaljević§, Marko Miliša & Ana Previšić

Department of Zoology, Division of Biology, Faculty of Science, University of Zagreb, Rooseveltov trg 6, HR-10000 Zagreb, Croatia (*marija.ivkovic@biol.pmf.hr)

§Equally contributing authors

Ivković, M., Mihaljević, Z., Miliša, M. & Previšić, A.: Aquatic dance flies fauna (Diptera, Empididae: Clinocerinae and Hemerodromiinae) of Montenegro. Nat. Croat., Vol 22, No. 2, 243–252, 2013, Zagreb.

Adult aquatic dance flies (Empididae) were collected during July 2012 and July 2013 in Montenegro using sweep nets and by aspirator at 21 sampling sites. From 25 species recorded in this study, 22 species are new to the fauna of Montenegro: *Chelifera pyrenaica* Vaillant, *Hemerodromia laudatoria* Collin, *Clinocera stagnalis* (Haliday), *Clinocera wesmaeli* (Macquart), *Clinocerella sorex* (Engel), *Dolichocephala guttata* (Haliday), *Kowarzia barbatula* Mik, *Kowarzia plectrum* Mik, *Roederiodes macedonicus* Wagner & Horvat, *Wiedemannia (Chamaedipsia) longicornis* (Mik), *Wiedemannia (Eucelidia) zetterstedti* (Fallén), *Wiedemannia* (*Philolutra*) *angelieri* Vaillant, *Wiedemannia* (*Philolutra*) *aquilex* (Loew), *Wiedemannia* (*Philolutra*) *fallaciosa* (Loew), *Wiedemannia* (*Philolutra*) *hygrobia* (Loew), *Wiedemannia* (*Philolutra*) *kacanskae* Horvat, *Wiedemannia* (*Philolutra*) *queyrasiana* Vaillant, *Wiedemannia* (*Pseudowiedemannia*) *microstigma* Bezzi, *Wiedemannia (Wiedemannia) andreevi* Joost, *Wiedemannia* (*Wiedemannia*) *balkanica* Wagner, *Wiedemannia* (*Wiedemannia*) *stylifera* Mik and *Wiedemannia artemisa* Ivković & Plant. In total 34 species were recorded belonging to 9 genera. This study represents an important contribution to the knowledge of dance flies fauna of Montenegro and it is important reference for the distribution of Empididae on Balkan Peninsula.

Key words: aquatic dance fly distribution, *Wiedemannia* (*Philolutra*) *angelieri*, *Wiedemannia* (*Pseudowiedemannia*) *microstigma*, endemics, Balkan

Ivković, M., Mihaljević, Z., Miliša, M. & Previšić, A.: Vodene muhe plesačice (Diptera, Empididae: Hemerodromiinae i Clinocerinae) Crne Gore. Nat. Croat., Vol 22, No. 2, 243–252, 2013, Zagreb.

Vodene muhe plesačice su sakupljane entomološkom mrežicom i aspiratorom tijekom srpnja 2012. i srpnja 2013. godine. Uzorkovanje je provedeno na 21 lokaciji. Od 25 vrsta sakupljenih u ovom istraživanju, 22 vrste predstavljaju nove nalaze za faunu Crne Gore: *Chelifera pyrenaica* Vaillant, *Hemerodromia laudatoria* Collin, *Clinocera stagnalis* (Haliday), *Clinocera wesmaeli* (Macquart), *Clinocerella sorex* (Engel), *Dolichocephala guttata* (Haliday), *Kowarzia barbatula* Mik, *Kowarzia plectrum* Mik, *Roederiodes macedonicus* Wagner & Horvat, *Wiedemannia (Chamaedipsia) longicornis* (Mik), *Wiedemannia (Eucelidia) zetterstedti* (Fallén), *Wiedemannia* (*Philolutra*) *angelieri* Vaillant, *Wiedemannia* (*Philolutra*) *aquilex* (Loew), *Wiedemannia* (*Philolutra*) *fallaciosa* (Loew), *Wiedemannia* (*Philolutra*) *hygrobia* (Loew), *Wiedemannia* (*Philolutra*) *kacanskae* Horvat, *Wiedemannia* (*Philolutra*) *queyrasiana* Vaillant, *Wiedemannia* (*Pseudowiedemannia*) *microstigma* Bezzi, *Wiedemannia (Wiedemannia) andreevi* Joost, *Wiedemannia* (*Wiedemannia*) *balkanica* Wagner, *Wiedemannia* (*Wiedemannia*) *stylifera* Mik and *Wiedemannia artemisa* Ivković & Plant. Do sada su zabilježene 34 vrste iz 9 rodova. Ovo istraživanje pridonijet će boljem poznavanju faune vodenih muha plesačica Crne Gore, ali i poznavanju njihove rasprostranjenosti na Balkanskom poluotoku.

Ključne riječi: rasprostranjenost vodenih muha plesačica, *Wiedemannia* (*Philolutra*) *angelieri*, *Wiedemannia* (*Pseudowiedemannia*) *microstigma*, endemi, Balkan

INTRODUCTION

In the past the aquatic dance flies (Empididae: Clinocerinae & Hemerodromiinae) fauna of Montenegro was studied fragmentarily by only a few authors (Becker, 1889; Horvat, 1990; Wagner & Horvat, 1993; Wagner, 1995). Until now Horvat (1990) recorded seven Hemerodromiinae species and Wagner (1995) recorded additional two and one Clinocerinae species. Becker (1889) described Clinocerinae species *Phaeobalia penicissa* Becker and Wagner & Horvat (1993) described *Roederiodes montenegrinus* Wagner & Horvat from Montenegro. On the basis of two collecting trips to Montenegro in July 2012 and July 2013 a more detail overview of the Montenegro aquatic Empididae fauna is presented in this paper. The material was collected by all the authors of this paper. Older data from the literature are also included in the text (as references). The aim of this study is to gain a first insight into the faunistic composition of the dance fly fauna of Montenegro.

MATERIAL AND METHODS

This paper is based on a review of literature data and on unpublished data from our own research of the aquatic Empididae in Montenegro collected from 21 sites. Each literature record was georeferenced as possible using ArcGIS software. The name of taxa, present in this preliminary checklist reflects current nomenclature and classifications (Sinclair, 1995; Yang *et al*., 2007). Locality records are listed for each species. A list of locality names including latitude, longitude, altitude and number codes (site ID) for the localities are present in Table 1 and the map with all the sites is also provided (Fig. 1). Specimens were collected using sweep nets and by aspirator. All the collected aquatic dance flies were preserved in 80% ethanol. Male genitalia were removed and boiled in 10% KOH and afterwards they were neutralized with acetic acid mixed with clove oil and finally placed in a small dish with glycerine for examination with a Zeiss Semi 2000-C microscope. Taxonomic diversity is considered at the level of subfamily, genus and species.

RESULTS AND DISCUSSION

Aquatic dance flies of Montenegro (Empididae: Clinocerinae & Hemerodromiinae) – Faunistics

The following format is used for the distributional data; Literature references: name of the site and in the brackets citation of the reference and site ID; New records: name of the site and in the brackets site ID, following the sampling date and the number of sampled specimens. All the sites and their numbers are listed in Table 1.

Subfamily Hemerodromiinae

***Chelifera aperticauda* Collin, 1927**

Literature references: River Somina, Somina, Šavnik (Horvat, 1990) (7); River Tara, Jabuka, Kolašin (Horvat, 1990) (24).

***Chelifera concinnicauda* Collin, 1927**

Literature references: Crkvine, Kolašin (Horvat, 1990) (22); River Tara, Skrbuša, Kolašin (Horvat, 1990) (23); River Tara, Jabuka, Kolašin (Horvat, 1990) (24); Kraljske Bare, Kolašin (Horvat, 1990) (25).

Tab. 1. The list of sampling sites in Montenegro.

Site ID	Site name	Longitude	Latitude	Altitude (m)
1*	Njeguš	E 18° 48′	N 42° 26′	900
2*	Žabljak, Durmitor Mountain	E 19° 07′	N 43° 09′	1440
3*	Riblje jezero and Vražje jezero, Durmitor Mountain	E 19° 09′ 04″	N 43° 05′ 35″	1400
4	Spring Bukovica, Durmitor Mountain	E 19° 06′ 42″	N 43° 03′ 30″	1346
5	Bukovica Stream, Durmitor Mountain	E 19° 09′ 38″	N 43° 01′ 17″	1240
6	Tušina Stream, Durmitor Mountain	E 19° 15′ 30″	N 42° 55′ 27″	1095
7*	River Somina, Somina, Šavnik	E 19° 05′	N 42° 59′	1200
8*	River Zukva, Šavnik	E 19° 03′	N 42° 57′	820
9	Ljevak Stream, road to Đurđevića Tara	E 19° 26′ 02″	N 42° 59′ 15″	845
10*	River Tara, Podbišče, Mojkovac	E 19° 34′	N 42° 56′	810
11	Tributary to Biogradska rijeka	E 19° 35′ 55″	N 42° 54′ 01″	1200
12*	Bjelasica Planina, spring below Lubnice	E 19° 46′	N 42° 51′	900
13*	River Mušovića rijeka, Kolašin	E 19° 34′	N 42° 50′	1100
14	Svinjište Stream, near Kolašin	E 19° 34′ 06″	N 42° 50′ 23″	1060
15	Stream tributary to Stream Svinjište	E 19° 34′ 35″	N 42° 50′ 13″	1100
16	Spring Jeremija, Kolašin	E 19° 34′ 07″	N 42° 50′ 10″	1070
17*	Spring Ropušica, Lipovo	E 19° 27′	N 42° 52′	1300
18*	River Trebačka rijeka, Trepča, Berane	E 19° 50′	N 42° 49′	750
19*	River Morača, Požnja, Mioska	E 19° 23′	N 42° 48′	360
20*	River Ibar, Rožaje	E 20° 08′	N 42° 49′	1050
21	Spring Ibar	E 20° 05′ 25″	N 42° 47′ 50″	1270
22*	Crkvine, Kolašin	E 19° 30′	N 42° 48′	940
23*	River Tara, Skrbuša, Kolašin	E 19° 30′	N 42° 47′	950
24*	River Tara, Jabuka, Kolašin	E 19° 31′	N 42° 44′	1030
25*	Kraljske Bare, Kolašin	E 19° 36′	N 42° 44′	1070
26	River Rajeva rijeka, near Andrijevica	E 19° 41′ 51″	N 42° 45′ 01″	1140
27	Stream Aksov potok, road to Kolašin	E 19° 42′ 20″	N 42° 44′ 42″	1150
28	Stream Gnjili potok, Andrijevica	E 19° 42′ 59″	N 42° 44′ 46″	1070
29*	River Zlorečica, Kruška, Andrijevica	E 19° 47′	N 42° 43′	770
30*	River Zlorečica, Kuti, Andrijevica	E 19° 47′	N 42° 39′	980
31	River Šekularska rijeka, near Andrijevica	E 19° 55′ 16″	N 42° 44′ 17″	995
32*	Murino, Mokra Planina, Velika, Čakor Pass	E 19° 58′	N 42° 40′	1400
33	River Murinska rijeka	E 19° 53′ 01″	N 42° 39′ 09″	1000
34	Stream Brodavac	E 19° 44′ 10″	N 42° 41′ 09″	960
35	River Peručica	E 19° 45′ 23″	N 42° 41′ 40″	880
36	Mouth of Stream Desna rijeka to River Mojanska rijeka	E 19° 43′ 40″	N 42° 41′ 20″	925
37	Alipaša's Springs	E 19° 49′ 33″	N 42° 33′ 00″	930
38	River Dolja 2	E 19° 47′ 54″	N 42° 32′ 47″	1004
39	River Dolja 1	E 19° 47′ 16″	N 42° 31′ 21″	1140
40	Spring Oko Skakavice	E 19° 50′ 05″	N 42° 30′ 42″	1034

* Sites from the Literature references.

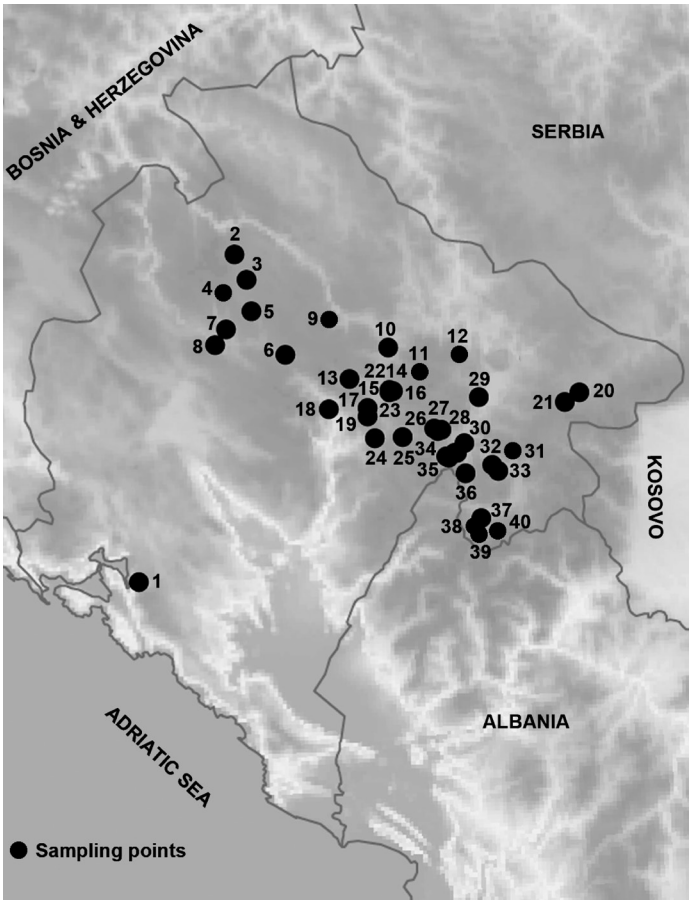

Fig. 1. Sampling sites of aquatic Empididae recorded from Montenegro.

Chelifera flavella (Zetterstedt, 1838)

Literature references: Žabljak, Durmitor Mountain (Wagner, 1995) (2); Spring Ropušica, Lipovo (Wagner, 1995) (17).

Chelifera precabunda Collin, 1961

Literature references: River Somina, Somina, Šavnik (Horvat, 1990) (7); River Morača, Požnja, Mioska (Horvat, 1990) (19); River Tara, Jabuka, Kolašin (Horvat, 1990) (24).

New records: River Rajeva rijeka, near Andrijevica (26), 7.vii.2012, 1♂, 1♀; River Murinska Rijeka (33), 11.vii.2013, 1♂, 1♀.

Chelifera precatoria (Fallén, 1816)

Literature references: River Trebačka rijeka, Trepča, Berane (Horvat, 1990) (18); River Tara, Jabuka, Kolašin (Horvat, 1990) (24); Stream Gnjili potok, Andrijevica (Horvat, 1990) (28).

New record: Spring Jeremija, Kolašin (16), 1♂, 1♀.

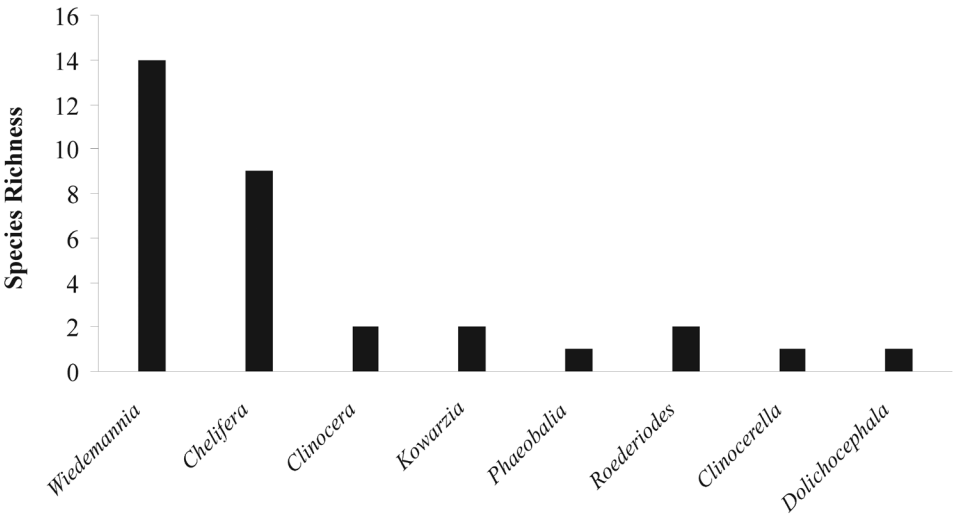

Fig. 2. Species richness of Montenegrin aquatic Empididae genera.

***Chelifera pyrenaica* Vaillant, 1981**
New record: Alipaša's springs (37), 8.vii.2012, 3♂♂.

***Chelifera siveci* Wagner, 1984**
Literature reference: River Tara, Skrbuša, Kolašin (Horvat, 1990) (23).
New records: Spring Bukovica, Durmitor Mountain (4), 12.vii.2013, 6♂♂, 1♀; Spring Ibar (21), 10.vii. 2013, 1♂, 2♀♀; Alipaša's springs (37), 8.vii.2012, 4♂♂, 17♀♀, 11.vii.2013, 4♂♂, 4♀♀.

***Chelifera stigmatica* (Schiner, 1862)**
Literature references: River Trebačka rijeka, Trepča, Berane (Horvat, 1990) (18); River Morača, Požnja, Mioska (Horvat, 1990) (19); River Ibar, Rožaje (20); River Tara, Skrbuša, Kolašin (Horvat, 1990) (23); River Tara, Jabuka, Kolašin (Horvat, 1990) (24); Kraljske Bare, Kolašin (Horvat, 1990) (25).

***Chelifera trapezina* (Zetterstedt, 1838)**
Literature references: River Somina, Somina, Šavnik (Horvat, 1990) (7); River Zukva, Šavnik (Horvat, 1990) (8); River Tara, Podbišče, Mojkovac (Horvat, 1990) (10); River Mušovića rijeka, Kolašin (Horvat, 1990) (13); Stream Gnjili potok, Andrijevica (Horvat, 1990) (28); River Zlorečica, Kruška, Andrijevica (Horvat, 1990) (29); River Zlorečica, Kuti, Andrijevica (Horvat, 1990) (30).

***Hemerodromia laudatoria* Collin, 1927**
New record: Alipaša's springs (37), 8.vii.2012, 2♂♂, 1♀.

***Hemerodromia raptoria* Meigen, 1830**
Literature reference: Lakes Riblje jezero and Vražje jezero, Durmitor Mountain (Wagner, 1995) (3).

Subfamily Clinocerinae

***Clinocera stagnalis* (Haliday, 1833)**
New records: Brodavac Stream (34), 10.vii.2013, 1♀; River Dolja 1 (39), 11.vii.2013, 1♀.

***Clinocera wesmaeli* (Macquart, 1835)**
New records: Spring Ibar (21), 9.vii.2012, 5♂♂, 13♀♀; Stream Aksov potok, road to Kolašin (27), 7.vii.2012, 1♂.

***Clinocerella sorex* (Engel, 1918)**
New record: Mouth of Stream Desna rijeka to River Mojanska rijeka (36), 8.vii.2012, 1♂.

***Dolichocephala guttata* (Haliday, 1833)**
New record: Spring Jeremija, Kolašin (16), 6.vii.2012, 1♀.

***Kowarzia barbatula* Mik, 1880**
New records: Tušina Stream, Durmitor Mountain (6), 6.vii.2012, 1♂, 1♀; tributary to River Biogradska rijeka (11), 12.vii.2013, 1♂, 2♀♀; Spring Ibar (21), 9.vii.2012, 10♂♂, 8♀♀; Stream Gnjili potok, Andrijevica (28), 7.vii.2012, 2♂♂; Brodavac Stream (34), 7.vii.2012, 5♂♂, 2♀♀; River Peručica (35), 7.vii.2012, 1♂; Alipaša's springs (37), 8.vii.2012, 1♂; River Dolja 1 (39), 11.vii.2013, 3♂♂.

***Kowarzia plectrum* Mik, 1880**
New record: Spring Ibar (21), 9.vii.2012, 1♂, 1♀; River Rajeva rijeka, near Andrijevica (26), 7.vii.2012, 1♂, 1♀.

***Phaeobalia peniscissa* Becker, 1889**
Literature reference: Njeguš (Becker, 1889) (1).

***Roederiodes macedonicus* Wagner & Horvat, 1993**
New record: Ljevak Stream (9), 12.vii.2013, 10♂♂, 6♀♀.

***Roederiodes montenegrinus* Wagner & Horvat, 1993**
Literature reference: Bjelasica Planina, spring below Lubnice (Wagner & Horvat, 1993) (12); Spring Ropušica, Lipovo (Wagner & Horvat, 1993) (17).

***Wiedemannia* (*Chamaedipsia*) *longicornis* (Mik, 1887)**
New record: River Rajeva rijeka, near Andrijevica (26), 7.vii.2012, 8♂, 6♀.

***Wiedemannia* (*Chamaedipsia*) *wachtli* (Mik, 1880)**
Literature reference: Murino, Mokra Planina, Velika, Čakor Pass (Wagner, 1995) (32).

***Wiedemannia* (*Eucelidia*) *zetterstedti* (Fallén, 1826)**
New records: Alipaša's springs (37), 8.vii.2012, 14♂♂, 31♀♀; River Dolja 1 (39), 11. vii.2013, 1♂, 4♀♀; Spring Oko Skakavice (40), 1♂, 1♀.

***Wiedemannia (Philolutra) angelieri* Vaillant, 1967**
New records: Tušina Stream, Durmitor Mountain (6), 6.vii.2012, 1♂, 3♀♀; Svinjište Stream, near Kolašin (14), 6.vii.2012, 2♂♂; River Rajeva rijeka, near Andrijevica (26), 7.vii.2012, 2♂♂; River Murinska rijeka (33), 7.vii.2012., 2♂♂; River Peručica (35), 7. vii.2012, 1♂, 2♀♀.

***Wiedemannia* (*Philolutra*) *aquilex* (Loew, 1869)**

New records: Ljevak Stream (9), 12.vii.2013, 5♂♂, 4♀♀; River Murinska rijeka (33), 7. vii.2012, 25♂♂, 13♀♀, 11.vii.2013, 6♂♂ 6♀♀; Alipaša's springs (37), 8.vii.2012, 15♂♂, 6♀♀, 11.vii.2013, 1♂, 1♀; River Dolja 2 (38), 11.vii.2013, 1♂, 3♀♀; Spring Oko Skakavice (40), 11.vii.2013, 2♂♂.

***Wiedemannia* (*Philolutra*) *fallaciosa* (Loew, 1873)**

New records: Tušina Stream, Durmitor Mountain (6), 6.vii.2012, 5♂♂, 6♀♀; Spring Ibar (21), 10.vii.2013, 2♂♂, 1♀; River Rajeva rijeka, near Andrijevica (26), 7.vii.2012, 4♂♂, 3♀♀; Šekularska rijeka, near Andrijevica (31), 1♂, 1♀; River Peručica (35), 7.vii.2012, 1♂, 1♀; Alipaša's springs (37), 8.vii.2012, 1♂.

***Wiedemannia* (*Philolutra*) *hygrobia* (Loew, 1858)**

New records: Svinjište Stream, near Kolašin (14), 6.vii.2012, 15♂♂, 21♀♀; stream tributary to Stream Svinjište (15), 6.vii.2012, 15♂♂, 10♀♀; River Rajeva rijeka, near Andrijevica (26), 7.vii.2012, 11♂♂, 14♀♀; River Murinska rijeka (33), 7.vii.2012, 6♂♂, 4♀♀; Brodavac Stream (34), 7.vii.2012, 28♂♂, 29♀♀, 10.vii.2013, 10♂♂, 14♀♀; mouth of Stream Desna rijeka to River Mojanska Rijeka (36), 8.vii.2012, 5♂♂, 3♀♀; River Dolja 2 (38), 11.vii.2013, 1♂, 1♀; Spring Oko Skakavice (40), 11.vii.2013, 9♂♂, 9♀♀.

***Wiedemannia* (*Philolutra*) *kacanskae* Horvat, 1993**

New records: Ljevak Stream (9), 12.vii.2013, 33♂♂, 40♀♀; Spring Ibar (21), 9.vii.2012, 1♂, 2♀♀, 10.vii.2013, 1♂, 1♀.

***Wiedemannia* (*Philolutra*) *queyrasiana* Vaillant, 1956**

New records: Stream tributory to Stream Svinjište (15), 6.vii.2012, 1♂; Brodavac Stream (34), 7.vii.2012, 2♂♂, 3♀♀.

***Wiedemannia* (*Pseudowiedemannia*) *microstigma* Bezzi, 1904**

New records: Tušina Stream, Durmitor Mountain (6), 6.vii.2012, 2♂♂, 10♀♀; River Rajeva rijeka, near Andrijevica (26), 7.vii.2012, 10♂♂, 4♀♀; River Šekularska rijeka, near Andrijevica (31), 10.vii.2013, 4♂♂, 4♀♀; River Murinska rijeka (33), 7.vii.2012, 19♂♂, 30♀♀, 11.vii.2013, 9♂♂, 5♀♀; Brodavac Stream (34), 7.vii.2012, 21♂♂, 17♀♀; River Peručica (35), 7.vii.2012, 9♂♂, 20♀♀; Mouth of Stream Desna rijeka to River Mojanska rijeka (36), 8.vii.2012, 29♂♂, 50♀♀.

***Wiedemannia* (*Wiedemannia*) *andreevi* Joost, 1982**

New record: Bukovica Stream, Durmitor Mountain (5), 6.vii.2012, 3♂♂, 4♀♀.

***Wiedemannia* (*Wiedemannia*) *balkanica* Wagner, 1981**

New record: Bukovica Stream, Durmitor Mountain (5), 6.vii.2012, 12♂♂, 14♀♀; Tušina Stream, Durmitor Mountain (6), 6.vii.2012, 3♂♂, 9♀♀.

***Wiedemannia* (*Wiedemannia*) *stylifera* Mik, 1889**

New records: River Rajeva rijeka, near Andrijevica (26), 7.vii.2012, 1♂; River Šekularska rijeka, near Andrijevica (31), 10.vii.2013, 2♂♂, 1♀; River Murinska rijeka (33), 7.vii.2012, 1♂.

***Wiedemannia artemisa* Ivković & Plant, 2012**

New records: Tušina Stream, Durmitor Mountain (6), 6.vii.2012, 1♂, 1♀; Brodavac Stream (34), 7.vii.2012, 10.vii.2013, 2♂♂, 2♀♀; Alipaša's springs (37), 8.vii.2012, 1♂.

Aquatic dance flies of Montenegro (Empididae: Clinocerinae & Hemerodromiinae) – species richness, new records for Montenegrin fauna and notes on distribution

During the investigation a total of 913 individuals were collected and 25 species were recorded from which 22 are new to the Montenegrin fauna: *Chelifera pyrenaica, Hemerodromia laudatoria, Clinocera stagnalis, Clinocera wesmaeli, Clinocerella sorex, Dolichocephala guttata, Kowarzia barbatula, Kowarzia plectrum, Roederiodes macedonicus, Wiedemannia (Chamaedipsia) longicornis*, *Wiedemannia (Eucelidia) zetterstedti*, *Wiedemannia* (*Philolutra*) *angelieri*, *Wiedemannia* (*Philolutra*) *aquilex*, *Wiedemannia* (*Philolutra*) *fallaciosa*, *Wiedemannia* (*Philolutra*) *hygrobia*, *Wiedemannia* (*Philolutra*) *kacanskae*, *Wiedemannia* (*Philolutra*) *queyrasiana*, *Wiedemannia* (*Pseudowiedemannia*) *microstigma*, *Wiedemannia (Wiedemannia) andreevi*, *Wiedemannia* (*Wiedemannia*) *balkanica*, *Wiedemannia* (*Wiedemannia*) *stylifera* and *Wiedemannia artemisa*. The most abundant species was *Wiedemannia* (*Pseudowiedemannia*) *microstigma* with a total of 243 specimens collected. Overall 34 species are recorded for Montenegrin fauna, subfamily Clinocerinae is represented by 23 species, in 7 genera: *Clinocera* Meigen (2 species), *Clinocerella* Engel (1 species), *Dolichocephala* Macquart (1 species), *Kowarzia* Mik (2 species), *Phaeobalia* Mik (1 species) *Roederiodes* Coquillett (2 species) and *Wiedemannia* Zetterstedt (14 species). The subfamily Hemerodromiinae is represented with 11 species, in two genera: *Chelifera* Macquart (9 species) and *Hemerodromia* Meigen (2 species). The Clinocerinae genus *Wiedemannia* is the most species rich (41%), followed by the Hemerodromiinae genus *Chelifera* (26%) (Fig. 2).

Majority of collected species are present in most of the Europe (Pape & Beuk, 2012), but there are some Balkan endemics, such as *C. siveci*, *W. kacanskae*, *W. microstigma*, *W. balkanica* and *W. artemisa*, that previously had much smaller reported areal of distribution. The only species that stands out is *Wiedemannia* (*Philolutra*) *angelieri*. Until now, this species was known only from Pyrenees Mountains where it was described (Vaillant, 1967; Pape & Beuk, 2012) and from Sierra Nevada Mountain in Andalusia, Spain (Ivković unpublished data); so its presence in Montenegro was not expected, but it does occur on more than one location.

This study only gives preliminary results of dance fly fauna of Montenegro. In the future studies more species should be found, especially in springtime and in parts closer to the Adriatic Sea, which were not considered in this study. This is a significant contribution to the distribution of aquatic dance flies on Balkan Peninsula and subsequently Europe.

ACKNOWLEDGEMENT

We would like to express our gratitude for financial support of this research through the project „Invertebrate taxonomy, ecology and biogeography of Croatian aquatic ecotones" (project number 119-1193080-3076, PI: Prof dr M. Kerovec) funded by Croatian Ministry of Science, Education and Sports and the project „The Drusinae (Insecta: Trichoptera) in a world of global change" (project number P23687-B17, PI: Prof dr J. Waringer) funded by the Austrian Science Fund (FWF).

Received August 19, 2013

REFERENCES

Becker, T., 1889: Neue Dipteren aus Dalmatien. Berliner Entomologische Zeitschrift, **33**, 335-346.

Bezzi, M., 1904: Empididae novae Palaearcticae ex Museo Nationali Hungarico. Annales Historico-Naturales Musei Nationalis Hungarici, **2**, 198-202.

Collin, J. E., 1927: Notes on the Empididae (Diptera) with additions and corrections to the British List. Entomologist's Monthly Magazine, **63**, 2-29, 61-67, 93-98.

Collin, J.E., 1961: British Flies: Empididae: Empidinae (Part) and Hemerodrominae. Part III. At the University Press, Cambridge. pp. 713-724.

Engel, E.O., 1918: Das Dipterengenus Atalanta Mg. (Clinocera ol.). Deutsche Entomologische Zeitschrift, **1918**, 1-80, 197-268.

Fallén, C.F., 1815: Empidiae Sveciae. Lundae, 16 pp.

Fallén, C.F., 1826: Supplementum Dipterorum Sveciae. Lundae, 16 pp.

Haliday, A.H., 1833: Catalogue of Diptera occurring about Holywood in Downshire. Entomological Magazine, London, **1**, 147-180.

Horvat, B., 1990: Aquatic Dance Flies of the Subfamily Hemerodromiinae (Diptera: Empididae) in Yugoslavia. Scopolia, **20**, 1-27.

Horvat, B., 1993: Aquatic Empididae fauna (Diptera) in Bosnia and Herzegovina. Scopolia, **28**, 1-25.

Ivković, M., Plant, A. & Horvat, B., 2012: A new species of Wiedemannia (Diptera: Empididae: Clinocerinae) from Balkan Peninsula. Zootaxa, **3478**, 581-585.

Joost, W., 1982: Beitrag zur Kenntnis der Hemerodromiinae Bulgariens (Insecta, Diptera, Empididae). Faunistische Abhandlungen, **9**, 121-124.

Loew, H., 1858: Ueber die Arten der Gattung Clinocera Meig. Wiener Entomologische Monatschrift, **2**, 238-253.

Loew, H., 1869: Beschreibungen europäischer Dipteren. Systematische Beschreibung der bekannten europäischen zweiflügeligen Insecten, von Johann Wilhelm Meigen. Halle, **1**, 1-310.

Loew, H., 1873: Diptera nova, in Pannonia inferiori et in confinibus Daciae regionsibus a Ferd. Kowarzio capta. Berliner Entomologische Zeitschrift, **17**, 33-52.

Macquart, J., 1835: Histoire naturelle des insectes. Diptères. Tome deuxième. Ouvrage accompagné de planches. Roret, Paris. 710 pp.

Meigen, J.W., 1830: Systematische Beschreibung der bekannten europäischen zweiflügeligen Insekten. Hamm, **6**, IV + 1-401.

Mik, J., 1880: Beschreibung neuer Dipteren. I. Eilf neue europäische Clinocera-Anen. Verhandlungen, der kaiserlich-königlichen zoologisch-botanischen Gesellschaf, **30**, 347-358.

Mik, J., 1887: Diagnosen neuer Dipteren. Wiener Entomologische Zeitung, **6**, 161-164.

Mik, J., 1889: Eine neue, aus den Beskiden stammende Art der alten Gattung Clinocera Meig. Wiener Entomologische Zeitung, **8**, 150-152.

Pape, T. & Beuk, P., 2012: Fauna Europaea. Available from: http://www.faunaeur.org (accessed 7 August 2013).

Schiner, J.R., 1862: Fauna Austriaca. Die Fliegen (Diptera) 1. Wien, LXXX + 672 pp.

Sinclair, B. J., 1995: Generic revision of the Clinocerinae (Empididae), and description and phylogenetic relationships of the Trichopezinae, new status (Diptera: Empidoidea). The Canadian Entomologist, **127**, 665-752.

Vaillant, F., 1956: Quelques Wiedemannia de France nouveaux ou peu connus [Diptera Empididae]. L'Entomologiste, **12**, 11-16.

Vaillant, F., 1967: La repartition des Wiedemannia dans les cours d'eau et leur utilization comme indicateurs de zones écologiques (Diptera, Empididae). Annales de Limnologie, **3**, 267-293.

Vaillant, F., 1981: Dipteres Empididae Hemerodromiinae nouveaux ou per connus de la region palearctique. Bonner Zoologische Beiträge, **32**, 351-408.

Wagner, R., 1981: Über einige Hemerodromiinae vom Balkan und aus der Ägäis. Spixiana, **4**, 297-304.

Wagner, R., 1984: Notes on Empididae (3). Description of *Chelifera siveci* sp.n. Aquatic Insects, **6**, 244.

Wagner, R., 1995: Empididen aus dem Mittelmeerraum (Diptera, Empididae: Hemerodromiinae und Clinocerinae). Acta Entomologica Slovenica, **3**, 5-23.

Wagner, R. & Horvat, B., 1993: The genus *Roederiodes* Coquillett, 1901 (Diptera, Empididae: Clinocerinae) in Europe, with descriptions of four new species. Bonner zoologische Beiträge, **44**, 33-40.

Yang, D., Zhang, K.Y., Yao, G. & Zhang, J.H., 2007: World catalog of Empididae (Insecta: Diptera). China Agricultural University Press, Beijing. 599 pp.

Zetterstedt, J.W., 1838: Sectio tertia. Diptera. Dipterologis scandinaviae. amicis et popilaribus carissimus. In: Insecta Lapponica Lipsiae (=Leipzig), p. 477-868.

SAŽETAK

Vodene muhe plesačice (Diptera, Empididae: Hemerodromiinae i Clinocerinae) Crne Gore

M. Ivković, Z. Mihaljević, M. Miliša & A. Previšić

Istraživanje vodenih muha plesačica u Crnoj Gori do sada nije provedeno sistematski te postoje samo pojedinačni podaci. Vodene muhe plesačice su sakupljane entomološkom mrežicom i aspiratorom tijekom srpnja 2012. i srpnja 2013. godine. Uzorkovanje je provedeno na 21 lokaciji. Od 25 zabilježene vrste u ovom istraživanju, 22 vrste predstavljaju nove nalaze za faunu Crne Gore: *Chelifera pyrenaica* Vaillant, *Hemerodromia laudatoria* Collin, *Clinocera stagnalis* (Haliday), *Clinocera wesmaeli* (Macquart), *Clinocerella sorex* (Engel), *Dolichocephala guttata* (Haliday), *Kowarzia barbatula* Mik, *Kowarzia plectrum* Mik, *Roederiodes macedonicus* Wagner & Horvat, *Wiedemannia (Chamaedipsia) longicornis* (Mik), *Wiedemannia (Eucelidia) zetterstedti* (Fallén), *Wiedemannia* (*Philolutra*) *angelieri* Vaillant, *Wiedemannia* (*Philolutra*) *aquilex* (Loew), *Wiedemannia* (*Philolutra*) *fallaciosa* (Loew), *Wiedemannia* (*Philolutra*) *hygrobia* (Loew), *Wiedemannia* (*Philolutra*) *kacanskae* Horvat, *Wiedemannia* (*Philolutra*) *queyrasiana* Vaillant, *Wiedemannia* (*Pseudowiedemannia*) *microstigma* Bezzi, *Wiedemannia (Wiedemannia) andreevi* Joost, *Wiedemannia* (*Wiedemannia*) *balkanica* Wagner, *Wiedemannia* (*Wiedemannia*) *stylifera* Mik and *Wiedemannia artemisa* Ivković & Plant. Vrsta s najviše uhvaćenih jedinki je *Wiedemannia* (*Pseudowiedemannia*) *microstigma*. Ukupno je za Crnu Goru zabilježeno 34 vrste iz 9 rodova. Najviše vrsta je zabilježeno za rod *Wiedemannia* i to 14 vrsta, a odmah iza njega je rod Chelifera sa 9 vrsta. Najzanimljiviji nalaz se odnosi na vrstu *Wiedemannia* (*Philolutra*) *angelieri* koja je do sada bila zabilježena samo na Pirinejskom poluotoku. Ovo istraživanje pridonijet će boljem poznavanju faune vodenih muha plesačica Crne Gore, ali i poznavanju njihove rasprostranjenosti na Balkanskom poluotoku i u Europi.